REMARKS

Claims 1-4, 6-9 and 11 are pending in this application. Claims 5 and 10 have been cancelled and the remaining claims amended by this amendment. Claims 1,5 and 9 were rejected as anticipated and claims 2-4 as obvious. Claims 6-8, 10 and 11 were indicated as allowable if in independent form. The limitations of claim 10 have been included in claim 9. Thus, claims 10 and 11 are allowable. Applicants appreciate the Examiner's indication of allowableness of claims 6-8, but believe that claims 1-4 are allowable as amended for the reasons set out below.

Claims 1 and 5 were rejected under 35 U.S.C. §102 as anticipated by Kawano et al., U.S. Patent No. 5,808,791. Claim 1 has been amended to include the limitations of claim 5. These limitations relate to disposing a lamp housing on the back side of an inverted microscope. Applicants submit that Kawano et al, which has a normal, not an inverted microscope, does not disclose mounting an imaging device on the back side of an inverted microscope, as recited in amended claim 1. Only with this arrangement can the advantages described on pages 17 and 18 be achieved. Specifically, Kawano does not disclose a fluorescent cube to reflect images to the back side of an inverted microscope, as recited in claim 1. The microscope of Kawano is a normal type, not an inverted type. Applicants submit that nothing in the art suggest this change. Nor, is there any suggestion of modifying Kawano's normal microscope to an inverted microscope with the claimed lamp housing and other elements disposed on its back side. Furthermore, the manner of doing this is not trivial. The Applicants submit that amended claim 1 is not anticipated by Kawano for at least the reasons mentioned above.

Claims 2-4 depend on claim 1 and are allowable as claim 1 is allowable. Nothing in the secondary reference makes up for the teaching missing from Kawano.

In view of the above, all claims are now in condition for allowance, prompt notice of which is respectfully requested.

The Commissioner is authorized to charge $110.00, in accordance with 37 C.F.R. §1.17(a), to Deposit Account No. 11-0600. The Commissioner is further authorized to charge any additional fees or credit any overpayments associated with this reply to Deposit Account No. 11-0600. A copy is enclosed for accounting purposes.

Respectfully submitted,

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MARKED UP VERSION TO SHOW CHANGES MADE

In the Specification:

Please replace the last paragraph beginning on page 14, line 24, with the following paragraph:

In addition, by attaching the TV camera 102 to the backside port [102] 100, a cable for the TV camera 102 may be disposed further away than before, so that ability of researcher to operate is improved.

Please replace the first full paragraph on page 13 with the following paragraph:

On the other hand, light transmitted through the prisms 16a, and 16b passes along the observation light path 17b is incident on an optical element 22, and is reflected by the optical element 22. Light reflected by the optical element 22 is focused on a primary focal plane 29e. A photo mask 30 and a scale glass can be inserted into the primary focal plane 29e. The photo mask 30, for example, a glass having a reticle to make sure of the center of an image area imaged on a monitor of the TV camera, is for checking the image area. The scale glass is for checking a size of an image imaged on the monitor of the TV camera.

Please replace the second full paragraph on page 15 with the following paragraph:

A typical inverted microscope includes a photo mask 30 attached to the imaging port disposed in the observation optical path 17b, or a scale glass as explained in connection with the first embodiment. Either the photo mask 30 or the scale glass can be inserted into the observation optical path 17b to be disposed in the focal plane, which is [one of] either the primary focal plane [and] or the secondary focal plane. In this way, an image of the sample 9, which overlaps the photo mask 30 or the scale glass, can be seen by the eye. In this case, checking of the image area of the camera is done indirectly by using the photo mask 30. Therefore, it is necessary that the center of the optical axis of the camera is aligned with the center of the photo mask 30. Also, the camera must be attached so that the image plane of the camera is placed at a focal plane of the imaging optical path 17a.

Please replace the last paragraph starting on page 17 with the following paragraph:

First of all, the photo mask 30 is located at a focal plane, the second focal plane 29e', of the ocular lens 27. Then , the sample 9 is put on the stage 8. A magnified image of sample 9 is observed by using the ocular lens 27b, and then the magnified image of the sample 9 is focused by using the focusing handle so that the magnified image and the photo

mask 30 can be observed clearly at once. Next, a position of the sample 9 is adjusted by moving the stage 8 so that a certain position of the magnified image of the sample 9 accords with a central portion of the photo mask 30 on the magnified image observed by the researcher.

Please replace the second full paragraph beginning on page 18 with the following paragraph:

By carrying out above adjustment, the image plane of the camera is aligned with the photo mask 30. In addition, light incident of the photo mask 30 is focused on the photo mask 30, and light incident on the image plane is focused on the image plane. Furthermore, the image plane of the camera is set to the focal plane of the imaging optical path 17a. That is, the photo mask 30 is parfocal with the image plane of the camera.

In the Claims:

1. (Amended) An inverted microscope comprising:

an objective lens disposed below a sample;

an image-forming lens for focusing observation light from said objective lens[, said image-forming lens imaging said observation light at a focal plane];

a lens-barrel disposed on the front side of the microscope;

a reflecting mirror for directing transmitted light passing through said image-forming lens to the lens-barrel on the [a] front side of the microscope;

an [first] optical element disposed between said image-forming lens and said reflecting mirror, for directing light from said image-forming lens to [an imaging optical path extending to a] the backside of the microscope to form an imaging optical path, which backside is the opposite side of the front side of the microscope on which said lens-barrel is disposed [said first optical element disposed between said image forming lens and said reflecting mirror];

[a port in said microscope, said imaging optical path passing through said port; and]

an image-taking port for mounting an imaging device in the imaging optical path in the back side of the microscope [coupled to said port] so that the image plane of said imaging device [having an image plane] substantially corresponds to the focal plane of the image-forming lens [said image plane substantially corresponding to said focal plane];

a light source for reflected illumination of the sample through the objective lens;

a first reflected illuminator coupled to the light source, for directing light from the light source;

a relay tube coupled to the first reflected illuminator, having a mirror inside for deflecting light emitted from the light source and passed through the first reflected illuminator;

a second reflected illuminator coupled to the relay tube for directing light deflected on the mirror in the relay tube to inside of the microscope; and

a fluorescent cube disposed between the objective lens and the image-forming lens, for directing light passed through the second reflected illuminator to the objective lens from the backside of the microscope which backside is the opposite side of the front side on which the lens-barrel is disposed.

2. (Amended) The inverted microscope according to claim 1, [wherein said image forming lens forms a primary image and] further comprising:

a relay lens for relaying a [said] primary image formed by the image-forming lens [to said focal plane]; and

an adjusting device for adjusting [changing] a focusing position with respect to the image plane of the imaging device [distance between said image plane and said focal plane, said adjusting device disposed between said port and said imaging device].

3. (Amended) The inverted microscope according to claim 2, wherein [said imaging optical path comprises an optical axis, and] said adjusting device is able to adjust the focusing position [moves said image plane] in the direction of the [said] optical axis and a direction perpendicular to the [said] optical axis.

4. (Amended) The inverted microscope according to claim 1, further comprising:

viewing optics disposed in an observation optical path, and [extending from said reflecting mirror, said viewing] including a photo mask; and

an adjusting device attached to said image-taking port, being able to adjust said imaging device by [for] moving said imaging device in the direction of the [an] optical axis of said imaging optical path and the [a] direction perpendicular to said optical axis, and making [until] said photo mask coincide with a central portion and image plane of said imag[e]ing device [plane coincides with a central position of said photo mask, said adjusting device attached to said port].

6. (Amended) The inverted microscope according to claim 1, further comprising:

[a first light source for emitting excitation light to illuminate the sample via said objective lens;]

a first [second] optical element disposed in an observation optical path along the optical axis of said objective lens, for directing said excitation light from the light source to the sample, and for transmitting observation light from the sample [said optical element disposed in an observation optical path along an optical axis of said objective lens];

a second light source for emitting a laser beam incident on the sample via said objective lens;

a second [third] optical element disposed in said observation optical path behind said first optical element, for directing said laser beam from said second light source to the sample, and for transmitting said observation light from the sample and directing said observation light to said first optical element [said third optical element disposed in said observation optical path where said observation light has been transmitted through said second optical element];

an image-forming lens for said laser beam disposed between said second light source and said second optical element, for focusing said laser beam on the sample [said image forming lens for said laser beam disposed between said second light source and said third optical element]; and

a lens holder for supporting said image-forming lens for said laser beam to enable movement of said image-forming lens for said laser beam in a direction of an optical axis of said laser beam, said lens holder adjusting a position of said image-forming lens for said laser beam so that said laser beam is focused on an appropriate position for said objective lens.

7. (Amended) The inverted microscope according to claim 6, further comprising:

a moving mechanism in which said first optical element and said second optical element are disposed, for removing said first optical element and said second [third] optical element from said observation optical path at the same time.

8. (Amended) The inverted microscope according to claim 7, [further comprising a total transmission prism; and] wherein:

said first optical element comprises a total reflection prism,

said moving mechanism holds said first optical element and a total transmission prism at a position corresponding to the imaging optical path with said second optical element, and [total reflection prism being] selectively switche[d]s [with] said first optical element and said total transmission [reflection] prism through a movement of said moving mechanism,

light of the observation optical path is directed to the lens-barrel through a reflection on a reflection element after passing through the total transmission prism, and

in said moving mechanism, the distance Y which is the distance between said total reflection prism and said total transmission prism is set to be longer than a half of the diameter X which is the maximum diameter of a light flux of said observation optical path [by using said moving mechanism, and being disposed in said observation optical when said third optical element and said total reflection prism are removed from said observation optical path, said moving mechanism holding said total reflection prism and said total transmission prism side by side in a direction that said moving mechanism moves, and a distance between said total reflection prism and said total transmission prism being longer than a half of a maximum diameter of said observation light].

9. (Amended) An inverted microscope comprising:

an objective lens for magnifying an image of a sample, disposed below the sample;

a first light source for emitting excitation light to illuminate a sample via said objective lens;

a second light source for emitting a laser beam to illuminate the sample via said objective lens;

an image-forming lens for said laser beam for focusing said laser beam on the sample via said objective lens;

a lens holder for supporting said image-forming lens for said laser beam, the lens holder enables [to enable moving] said image-forming lens for said laser beam to move in a direction of an optical axis of said laser beam for [said lens holder] adjusting a position of said image-forming lens for said laser beam so that said laser beam is focused on an appropriate position for said objective lens;

a first optical element disposed in an observation optical path along the optical axis of said objective lens, for directing said excitation light from the first light source to the sample, and for transmitting observation light from the sample;

a second optical element disposed in said observation optical path behind said first optical element, for directing said laser beam from said second light source to the sample, and for transmitting said observation light from the sample;

a third optical element for directing light passed through the second optical element to an imaging optical path;

a moving mechanism in which said second optical element and third optical element are mounted, for removing said second optical element and said third optical element from said observation optical path at the same time; and wherein

the image-forming lens for said laser beam is disposed between said second light source and said second optical element.

11. (Amended) The inverted microscope according to claim 9 [10], [further comprising a total transmission prism;] wherein

said third optical element comprises a total reflection prism,

said moving mechanism holds said third optical element and a total transmission prism with said second optical element, and selectively switches said third optical element and said total transmission prism in said observation optical path through a movement of said moving mechanism,

light of the observation optical path is directed to the lens-barrel through a reflection on a reflection element after passing through the total transmission prism, and

in said moving mechanism, the distance Y which is the distance between said total reflection prism and said total transmission prism is set to be longer than a half of the diameter X which is the maximum diameter of a light flux of said observation optical path [said total transmission prism is selectively switched with said total reflection prism by using said moving mechanism, and is disposed in said observation optical path when said second optical element and said total reflection prism are removed from said observation optical path, said moving mechanism holding said total reflection prism and said total transmission prism side by side in a direction that said moving mechanism moves, and a distance between said total reflection prism and said total transmission prism being longer than a half of a maximum diameter of said observation light].